State of the American Diet
- A Selection of Data Describing Current Dietary Intakes -

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Interagency Collaborations
National Health and Nutrition Examination Survey, What We Eat in America
Data Collection and Analysis

Data Collection
Nutrient Analysis
Supporting Databases
Development of Analytic Methods
Data Analysis
Overview

- Methods for dietary data collection
- Levels of dietary intake data
- Overall diet quality: Healthy Eating Index (HEI)
- Food group intakes
- Distributions of food group intakes
- Food category sources of calories and food groups
NHANES Goals
National Center for Health Statistics of the Centers for Disease Control and Prevention

• US population-based estimates of:
  • Health conditions
  • Awareness, treatment and control of selected diseases
  • Environmental exposures
  • Nutrition status and diet behaviors
• Establish and maintain a biospecimen program
NHANES Sampling Design

- Nationally representative
- Civilian, non-institutionalized US population
- 5,000 individuals examined annually

Oversampled groups:
- Non-Hispanic blacks
- Non-Hispanic Asians
- Hispanics
- 80+ years of age
- Low income whites
NHANES Data Collection

• In-person home interview

• Physical assessments in Mobile Exam Centers (MEC)
  o Physical exam measurements
  o Specialized testing
  o Lab specimen collection
  o 24 hour dietary recall interview (in person)

• Post exam assessments
  o Long term assessments (e.g. physical activity monitoring)
  o 24 hour dietary recall interview (phone)

DGA
Dietary Guidelines for Americans
NHANES, What We Eat In America (WWEIA)
Interview administered 24-hour dietary recall

USDA Automated Multiple Pass Method

Quick list
Forgotten-foods list
Time-and-occasion step
Detail cycle
Final probe

WWEIA Supporting Data from USDA

<table>
<thead>
<tr>
<th>FNDDS</th>
<th>Food and Nutrient Database for Dietary Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Nutrient values for ~9000 foods and beverages</td>
</tr>
<tr>
<td></td>
<td>• Energy and 64 nutrients</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPED</th>
<th>Food Patterns Equivalents Database</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>• Converts foods and beverages in FNDDS into food group components</td>
</tr>
<tr>
<td></td>
<td>• 37 USDA Food Patterns components</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WWEIA Food Categories</th>
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</thead>
<tbody>
<tr>
<td>• foods and beverages as consumed in the American diet</td>
</tr>
<tr>
<td>• ~ 150 unique food categories</td>
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</tbody>
</table>
### Peanut Butter & Jelly Sandwich

select data on nutrients and food group contributions

<table>
<thead>
<tr>
<th>42302025:</th>
<th>Peanut butter and jelly sandwich, with regular peanut butter, regular jelly, on whole wheat bread (140 g sandwich)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FNDDS</strong></td>
<td>402 kcal 8.7 g MUFA 14 g protein 304 mg potassium</td>
</tr>
<tr>
<td><strong>FPED</strong></td>
<td>2 oz-eq nuts &amp; seeds 1.3 oz-eq whole grains 12.7 g oils 3.75 tsp-eq added sugars</td>
</tr>
<tr>
<td><strong>WWEIA Food Categories</strong></td>
<td>Mixed Dish → Sandwiches → P.B. Sandwiches</td>
</tr>
</tbody>
</table>
Overall Diet Quality
Healthy Eating Index (HEI)
Americans Do Not Follow the DGA

How Healthy Is the American Diet?

U.S. Scores Over Time

2005-2006: 56
2007-2008: 57
2009-2010: 59
2011-2012: 60
2013-2014: 59
2015-2016: 59

U.S. Scores by Age Group

Ages 2-5: 61
Ages 6-11: 52
Ages 12-17: 52
Ages 18-64: 58
Ages 65+: 64

The Healthy Eating Index Score shows that Americans do not align their eating choices with the Dietary Guidelines. (on a scale from 0-100)

Data source for Healthy Eating Index scores: What We Eat in American, National Health and Nutrition Examination Survey. (Undated data are from 2015-2016).
Average Food Group Intakes Compared to Recommendations
Average Daily Vegetable Intake Compared to Recommended Intake

Data sources: What We Eat in America, NHANES 2015-2016 for average intakes by age-sex group. USDA Healthy U.S.-Style Eating Style recommended intake ranges, which vary based on age, sex, and activity level for recommended intakes. 2015-2020 Dietary Guidelines for Americans.
Average Daily Fruit Intake Compared to Recommended Intake

Data sources: What We Eat in America, NHANES 2015-2016 for average intakes by age-sex group. USDA Healthy U.S.-Style Eating Style recommended intake ranges, which vary based on age, sex, and activity level for recommended intakes. 2015-2020 Dietary Guidelines for Americans.
Average Daily Total Grains Intake Compared to Recommended Intake

Data sources: What We Eat in America, NHANES 2015-2016 for average intakes by age-sex group. USDA Healthy U.S.-Style Eating Style recommended intake ranges, which vary based on age, sex, and activity level for recommended intakes. 2015-2020 Dietary Guidelines for Americans.
Average Daily Dairy Intake Compared to Recommended Intake

Data sources: What We Eat in America, NHANES 2015-2016 for average intakes by age-sex group. USDA Healthy U.S.-Style Eating Style recommended intake ranges, which vary based on age, sex, and activity level for recommended intakes. 2015-2020 Dietary Guidelines for Americans.
Average Daily Protein Foods Intake Compared to Recommended Intake

Data sources: What We Eat in America, NHANES 2015-2016 for average intakes by age-sex group. USDA Healthy U.S.-Style Eating Style recommended intake ranges, which vary based on age, sex, and activity level for recommended intakes. 2015-2020 Dietary Guidelines for Americans.
Average Food Group Intakes
Changes Over Time
2003-2004 to 2015-2016

Bowman SA, Clemens JC, Friday JE, Schroeder N, Shimizu M, LaComb RP, and Moshfegh AJ.
Food Patterns Equivalents Intakes by Americans: What We Eat in America, NHANES 2003-2004 and 2015-2016.
Food Surveys Research Group. Dietary Data Brief No. 20, November 2018.
No Significant Change in Vegetable Intakes Between 2003-2004 and 2015-2016

Estimated Mean Intakes of Total Vegetables per Day by Age
WWEIA, NHANES 2003-2004 and 2015-2016

DATA SOURCE: What We Eat in America, NHANES 2003-2004 and 2015-2016, day 1, individuals 2+ years
No Significant Change in Fruit Intakes Between 2003-2004 and 2015-2016

Estimated Mean Intakes of Total Fruits per Day by Age

NHANES, NES 2003-2004 and 2015-2016

DATA SOURCE: What We Eat in America, NHANES 2003-2004 and 2015-2016, day 1, individuals 2+ years
Whole Grain Intakes Increased & Refined Grain Intakes Decreased between 2003-2004 and 2015-2016

*Significantly different from 2003-2004 (p<0.01)

DATA SOURCE: What We Eat in America, NHANES 2003-2004 and 2015-2016, day 1, individuals 2+ years
Young Children Significantly Reduced Total Dairy Intakes Between 2003-2004 and 2015-2016

Estimated Mean Intakes of Total Dairy per Day by Age
WWEIA, NHANES 2003-2004 and 2015-2016

*Significantly different from 2003-2004 (p<0.01)
DATA SOURCE: What We Eat in America, NHANES 2003-2004 and 2015-2016, day 1, individuals 2+ years
Adolescents Significantly Reduced Total Protein Intakes Between 2003-2004 and 2015-2016

Estimated Mean Intakes of Total Protein per Day by Age
WWEIA, NHANES 2003-2004 and 2015-2016

*Significantly different from 2003-2004 (p<0.01)
DATA SOURCE: What We Eat in America, NHANES 2003-2004 and 2015-2016, day 1, individuals 2+ years
Percent of Calories from Solid Fats and Added Sugars Decreased Between 2003-2004 and 2015-2016

Estimated mean intakes of calories from solid fats and added sugars as percent of total calories per day, by age

WWEIA, NHANES 2003-2004 and 2015-2016

*Significantly different from 2003-2004 (p<0.01)
* Percentages rounded to integers. Total percentages of calories from solid fats and added sugars are shown above the respective bar charts.

DATA SOURCE: What We Eat in America, NHANES 2003-2004 and 2015-2016, day 1, individuals 2+ years

Food Group Intake Distributions
Percent of Population Below or Above Recommended Food Group Amounts

USDA Healthy U.S.-Style Eating Style recommended intakes, which vary based on age, sex, and activity level for recommended intakes. 2015-2020 Dietary Guidelines for Americans.
WWEIA Food Categories and Select Subcategory Examples

- Milk and Dairy
- Protein Foods
- Mixed Dishes
- Grains
- Snacks and Sweets
- Fruit
- Vegetables
- Beverages, Nonalcoholic
- Alcoholic Beverages
- Water
- Fats and Oils
- Condiments and Sauces
- Sugars
- Infant Formula and Baby Food
- Other

- Meat, Poultry, Seafood
- Grain-based
- Asian
- Mexican
- Pizza
- Sandwiches
- Soups

- Burgers
- Frankfurter sandwiches
- Chicken/turkey sandwiches
- Egg/breakfast sandwiches
- Other sandwiches
- Cheese sandwiches
- Peanut butter and jelly sandwiches

Food Category Sources of Calories

Males and Females - Distribution of energy intake (percentages) across major categories

WWEIA, NHANES 2013-2016

Top 10 Sub-category Sources of Energy

Males and Females – Distribution of energy intake (percentages) across top 10 sub-categories
WWEIA, NHANES 2013-2016

Top 10 Sub-category Sources of Vegetables

Males and Females – Distribution of vegetable intake (percentages) across top 10 sub-categories

WWEIA, NHANES 2013-2016

Our Common Goal: Improving the Health of Our Nation

• What we eat and drink matters
• We still fall far short of eating according to the Dietary Guidelines

How Healthy Is the American Diet?

Data show that moving toward the Dietary Guidelines can have health and economic benefits